CERTAMEN MELASTOMATACEIS VIII.

25491

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With the assistance of a grant from the National Science Foundation and logistic help from the Museo de Historia Natural "Javier Prado" in Lima, many of the rare Melastomataceae of Depto. Amazonas, Peru, were collected in 1962. A future paper will complete discussion here begun for the collections. The high-elevation regions showed species with strong Ecuadorian affinities and generally, for the restricted endemics, little relation with the flora of central and southern Peru. In the lowland area, 3000 mm of rain were measured in the first six months of 1962 at the Peruvian road construction camp near the Cascadas de Mayasi; the flora of this moist region along the Marañón from shortly below Pongo de Rentema to Pongo de Manseriche is generally like that of similar areas in Amazonian Ecuador and adjacent Colombian Putumayo. Certainly in Peru, the climate and flora change below (east of) Pongo de Manseriche to that characteristic of Iquitos and other areas of the upper Amazon basin. At the southern extreme of the wet zone, the sharp ecotone from the xerophytic association along the Marañón above Pongo de Rentema is startling and topographically seemingly inexplicable.

Dr. B. L. Turner and Mr. Mike Powell at the University of Texas were able to obtain chromosome numbers for two of the 41 species whose anthers were sent to Austin. The numbers reported by them were _n_ = ca. 12-16 for _Miconia centrophora_ Naud. (_Wurdack 517_) and _n_ = 19 for _Graffenrieda calyptrelloides_ Wurdack (_Wurdack 1506_); these apparently are the first familial counts for any of the 2000-odd species of South American Melastomataceae. For _1506_, Dr. Turner reported very small poorly stained chromosomes and for _517_, all meiotic cells with heavily precipitated cytoplasm; he believes that the Melastomataceae are a difficult family cytologically, rather than relatively easy like the Compositae (where he obtained chromosome counts on 58 of 117 vials shipped from Chachapoyas).

3799 AXINAEA MERTENSIOIDES Wurdack, sp. nov.

A. dependenti R. & P. affinis sed glabra et foliis minoribus.

Ramuli sicut folia inflorescentiarum ramique primum sparsissime pulverulenti mox glabrati teretes in nodis stipuliforme incrassati auriculis erectis corneis persistentibus ca. 2 X 4 mm. Petioli 0.5-1 cm; scutum nullum; lamina 4.5-7 X 2-3 cm tenuiter coriacea apice basique acuta, 5-plinervata jugo interiore 0.5-0.7 cm supra basim inserto jugo exteriore debili

inframarginali nervulis laxe reticulatis, ad margines sinuato-serrulata dentibus obtusis ca. 0.5 mm altis et 2-3 mm inter se distantibus. Panicula 6-10 cm longa; flores 4-meri seminutantes glabri pedicellis gracilibus 0.8-1.3 cm longis. Hypanthium (ad torum) 2.6-2.8 X 2.5-2.7 mm; calycis tubus 0.5-1 mm apice truncatus vel vix (ad 0.5 mm) lobatus lobis oblatis apice rotundatis dentibus exterioribus inconspicuis 0.2 mm longis non eminentibus. Petala 12-14 X 8-10 mm asymmetrice obovata apice oblique rotundata vel vix emarginata. Stamina isomorphica; filamenta 4.5 mm longa; antherarum thecae 4.5 X 0.8 mm apice dorsaliter minute uniporosae, appendice dorsali inflata 5 X (lateraliter) 2.7 mm basi 2.9 mm crassa apicem versus ad 1.4 mm constricta apice acuta. Stylus 15 X 1-0.4 mm; stigma 0.4 mm latum; ovarium 4-loculare glabrum apice truncatum; fructus 4-valvatus; semina non visa.

Type Collection: J. J. Wurdack 1467 (holotype US 2404308; isotype USM; 14 isotypes to be distributed), collected in scrub forest along Río Ventilla 1-2 km west of Molinopampa, Prov. Chachapoyas, Depto. Amazonas, Peru, elev. 2350-2400 m, 23-25 July 1962. "Shrub 2-5 m, frequent. Petals pink in bud, purple-blue at anthesis; anthers purple-brown with burnt-orange connective bulb".

The specific epithet refers to the developmental change in petal color, rather like that in the floodplain bluebells of eastern U.S.A. A. glandulosa has a rather sparse tomentum of strongly roughened hairs 0.3-0.5 mm long on branchlets, lower leaf surface veins and veinlets, and inflorescences; the leaf blades are 7-14 X (2.5-) 3.5-7.5 cm. While the correct application of the names A. dependens and A. glandulosa R. & P. is still debatable (with Markgraf's and Eves' applications the same as the Flora Peruviana Vol. 4 plates), for convenience Eves' interpretation has been followed. A recent collection of A. dependens is Hodge 6278 (US), from the Carpish pass in Huánuco; all available flowers on this specimen are 4-merous. Probably, in the Ruiz & Pavón material one of the cucullate rather rigid petals was split in dissection, with a resulting diagnosis of 5-merous flowers. The only other 4-merous species of Axinaea, as treated by Eves, is A. crassinoda Triana, with white to pink-flushed petals; this species is common on the upper slopes of Puma-urcu above Chachapoyas (Wurdack 657 & 789), where the large pendant panicles (up to 5 dm long) give the flowering plants somewhat the aspect of tree wisterias.

AXINAEA NITIDA Cogn.

Wurdack 954, from the jalca zone south of Laguna Pomacocha, Prov. Bongará, Amazonas, is more glabrous than either the Weberbauer type collection or Wurdack 1259 (from the middle eastern Calla-Calla slopes); this collection probably represents the "pure" species, rather than having a slight infiltration of A. tomentosa pubescence genes. No plants of A. tomentosa were seen in the immediate vicinity of No. 954. A. nitida was frequent in all undisturbed jalca zones; a close relative is

A. lanceolata R. & P. (sensu Eves), with quadrisulcate branchlets and deeper hypanthia.

AXINAEA TOMENTOSA Cogn.

Wurdack 1623, from the south side of the Molinopampa-Diosan pass, has very thick leaves with recurved margins, probably a reflection of the open jalca habitat; Wurdack 907, from the forested hills NNW of Laguna Pomacocha, has plane leaves like the previously collected material of Mathews and Weberbauer. Mathews type collection (isotype NY) has slightly more acute leaf blades than other material. Wurdack 1624, from the same zone as No. 1623, is an obvious hybrid with A. nitida, having ovate (rather than ovate-oblong) thinner leaves with marginal serrulations intermediate in size between those of the parents, as well as somewhat attenuated pubescence on leaves, stems, and flowers. The hybrid is slightly closer morphologically to A. nitida; it also resembles in aspect A. weberbaueri Cogn. (isotype US), but has terete to obscurely rounded-quadrate (rather than sulcate-quadrate) branchlets, somewhat longer pubescence, and leaf blades above with veinlets densely raised-reticulate. Only two plants of No. 1624 were seen in a zone abounding in both putative parents. There seems no reason for further burdening Index Kewensis by formal naming of such hybrids, numerically insignificant in natural populations, unless and when the hybrids are to be of utility in horticultural or other fields.

MERIANIA TETRAGONA (Cogn.) Wurdack, comb. nov.

Axinaea tetragona Cogn., Bot. Jahrb. 42: 137. 1908.

Meriania raimondii Mgf., Notizbl. Bot. Gart. Berlin 13: 461. 1937.

Wurdack 1250, from the middle eastern Calla-Calla slopes, has been compared with the type collection of M. raimondii (USM). Macbride's excellent type photograph (F 16905) of the Weberbauer type collection of A. tetragona, plus field observation of the widespread population in Amazonas (seen also throughout the easternmost cordillera zone radiating from Molinopampa), leaves no doubt as to the synonymy. Certainly, the species is best placed generically beside its near relative, M. radula (Benth.) Tr. sensu Macbride (also fairly common in upland Amazonas), with which it shares the feature of ornamental deep red petals. The smaller ovate cordate strongly bullate leaves with glabrous petioles separate M. tetragona from M. tetraquetra.

MERIANIA RUGOSA Mgf.

Two collections (Wurdack 1483, from the Río Ventilla scrub forest west of Molinopampa; Wurdack 1617, from scrub forest north of Molinopampa) have been compared with the Raimondi type collections (USM). Markgraf's petal measurements must have been from a bud; mature petals, partially hidden by a leaf in mounting the Raimondi specimens, are comparable with those of my own flowering collection, 2.5-3.5 X 1.5-2.5 cm. M. rugosa must be a close

relative of M. tetraquetra Tr., known to me only by description and photograph; the basally nerved leaves and tetraquetrous branchlets, as well as the smaller flowers, are ample distinctions from M. rugosa.

MERIANIA HEXAMERA Sprague

Macbride had tentatively recorded this Colombian species for the flora of Peru, based on fragmentary material. The current collection (Wurdack 1050, from rainforest between Laguna Pomacocha and Yambrasbamba) seems to confirm this distribution, although the leaves on No. 1050 are only 7-8 cm wide. Cuatrecasas 9139 (US), from Caquetá between Sucre and La Portada, Colombia, in young bud, has also been referred to M. hexamera.

GRAFFENRIEDA CALYPTRELLOIDES Wurdack, sp. nov.

De affinitate mihi incognita sed certe in systema Cogniauxii a G. patenti et G. weddellii Naud. valde distincta.

Rami graciles teretes glabri. Petioli 0.7-1 cm longi glabri; lamina membranacea 4-6 X 1-2.5 cm elliptica basi apiceque acuta vix triplinervata nervis primariis lateralibus cum costa ad basim per 3-7 mm proximis nervis secundariis inconspicuis tertiariis non vel vix evolutis, marginibus exceptis glabra, ad margines inconspicue crenulata et distanter ciliolata. Panicula 5-6 cm longa lataque glabra; flores 5-meri glabri bene graciliterque pedicellati pedicellis plerumque 5-8 mm longis circum medium articulatis et bibracteolatis (bracteolis 0.5 X 0.3 mm) vel non articulatis. Hypanthium (ad torum) 1.5 X 2 mm inconspicue 10-costatum; calycis tubus 0.1 mm altus, lobis interioribus 0.3 mm altis late triangularibus apice apiculatis, dentibus exterioribus 0.3-0.5 mm eminentibus acutissimis. Petala 3.8-4 X 4.2-4.6 mm oblongo-lanceolata apice anguste acuta. Stamina isomorphica; filamenta 1.7-1.8 mm; antherarum thecae 1.5 mm longae, connectivo ventraliter inconspicue (0.1 mm) tuberculato appendice dorsali descendenti 0.3 mm longa hebeti-acuta. Stylus 4.7 X 0.15-0.2 mm; stigma truncatum; ovarium triloculare apice sub lente sparsissime pilis clavatis minutis ornatum; fructus capsularis trilocularis; semina non visa.

Type Collection: J. J. Wurdack 1506 (holotype US 2404311; isotype USM; 3 isotypes to be distributed), collected in scrub forest along Río Ventilla 1-2 km west of Molinopampa, Prov. Chachapoyas, Depto. Amazonas, Peru, elev. 2350-2400 m, 23-25 July 1962. "Shrub 1-2 m, mostly in bud, frequent. Petals white".

Within Graffenrieda, although the aspect of G. calyptrelloides is most like that of G. moritziana Tr. and G. chrysandra (Griseb.) Tr., the Peruvian material totally lacks the hyaline apiculate calyx cone (repturing early and irregularly, the lobes persisting at anthesis) to be found in buds of the Cuban and Venezuelan species; this cone may be an eventually convincing character for transfer of at least these two species to Calyptrella. The general habit of the Molinopampa endemic, especially the tiny well-pedicelled flowers, is rather like that

of Calyptrella tristis Tr. and C. gracilis Tr. The inflorescence of G. calyptrelloides is also reminiscent of that of G. candelabrum Macbr. That species, however, surely belongs in the Miconieae, probably in Leandra (but not near the vegetatively suggestive Miconia eugenioides Tr.); the 1/5-semi-inferior ovary and baccate fruit (vide Schultes & Cabrera 15728) negate placement in Graffenrieda. A peculiar feature in G. candelabrum is edging of alternate stamen connective dorsal appendages with minute glands.

GRAFFENRIEDA ACIDA Mgf.

Wurdack 1054, from the rainforest between Laguna Pomacocha and Yambrasbamba, is more glabrescent than the Raimondi syntype collections (USM), but otherwise the same. G. denticulata (Gleason) L. Wms. is extremely close to G. acida, differing only in the more minute pubescence and proportionately wider leaves; both species share the feature of peach-colored (dull orange to buff or dull rose, fide Steyermark) petals which never spread.

CALYPTRELLA GRACILIS Tr.

Graffenrieda parviflora Cogn., Fedde Rep. 8: 1. 1910.

Comparison of Buchtien Bolivian collections with Peruvian and Colombian material indicates a rather widespread species characterized by the presence (usually) of sparse minute (0.3-0.8 mm long) simple hairs along the midvein and sometimes the lateral primaries and even the secondaries on the lower leaf surface. N. Y. Sandwith kindly confirmed the presence of such hairs on Spruce 4896, while an isotype (NY) examined by me conformed in other details to the Buchtien syntype (No. 1722, US) of G. parviflora. Other material examined included: Bolivia, Buchtien 51 (NY), 1115 (NY, US), 1117 (NY, US), 1118 (NY, US) and Cardenas 1302 (NY), 1306 (NY), 1310 (NY); Peru, Río Marañón, Wurdack 1964 (US, USM); and Colombia, Caquetá, Cuatrecasas 8888 (US), 8921 (US), 8961 (US), 9177 (US) and Putumayo, Klug 1748 (US). Undeniably, G. moritziana Tr. and G. chrysandra (Griseb.) Tr. are congeneric with C. gracilis, but the extended problems involving differentiation of other Merianieae from Graffenrieda and Calyptrella are precautions against wholesale transfers without monography. Thus Centronia D. Don (1823) predates Graffenrieda DC. (1828) and Calyptrella Naud. (1852), while Meriania Sw. (1800) would have precedence over all in wholesale lumping.

CENTRONIA EXCELSA (Bonpl.) DC.

C. tunguraguae Blake, Proc. Biol. Soc. Wash. 35: 118. 1922.

There seems no need at present to add to probable future synonymy by describing the variant common on Cerro Yama-Uma above Molinopampa (Wurdack 1661), with inflorescence branchlets and hypanthia villous as in C. peruviana Macbr., but with lower leaf surface pubescence as in C. tomentosa Cogn.-C. excelsa and calyptra-beak slightly smaller (ca. 2.5 mm long) than in

C. tomentosa. The Yama-Uma population seems to have exclusively 5-petaled flowers and 6(-7)-celled ovaries; apparently petal number in this complex ranges from 5 to 8 (Rimbach 242) and leaf blades are slightly plinerved (as in C. tomentosa, despite Cogniaux' key) or not. In any event, the Tunguragua material fits well with the C. excelsa element.

DIOLENA PLUVIALIS Wurdack, sp. nov.

D. amazonicae Pilg. et D. boliviensi Cogn. affinis sed hypanthiis non strigosis.

Caulis sublignosus 10-30 cm longus basi radicans sicut petioli primum modice strigulosus pilis ad 1 mm longis rubrotinctis. Folia in eodem jugo satis inaequalia membranacea supra glabra subtus in venis primariis modice vel sparse strigulosa. Folia maiora: petioli 2-5.5 cm; lamina (6-) 10-18 X (3-) 5-10 cm asymmetrice elliptico-ovata apice breviter (per 0.5-1 cm) acuminata basi asymmetrice cordata (5-15 mm) auriculis plerumque imbricatis, (7-) 9-11-nervata nervulis subtus laxe reticulatis margine inconspicue serrulata. Folia minora: petioli 0-2 mm; lamina 0.7-3 X 0.6-2 cm orbiculari-ovata vel oblongo-ovata apice acuta vel vix subabrupte acuminata basi asymmetrice cordulata. Inflorescentia ut in D. amazonica ad 15 cm longa sparse strigulosa; flores 5-meri pedicellis 0.7 mm longis. Hypanthium 3 mm longum ut videtur glabrum (vel ad apicem versus sparsissime strigulosum) sed sub lente densiuscule pilis clavatis rubris ca. 0.1 mm longis obsitum; calycis tubus 0.4-0.5 mm altus, lobis 0.3-0.4 mm altis rotundatis dentibus exterioribus non vel vix (ad 0.3 mm) eminentibus. Petala 5.5-7 X 4-4.5 mm oblongo-obovata apice rotundata. Stamina dimorphica; filamenta 2.8-3.3 vel 2.1-2.6 mm. Stamina maiora: antherarum thecae 1.3-1.5 mm longae, connectivo sub loculis 0.1 mm prolongato cornu dorsali 0.1-0.15 mm eminente appendicibus duabus ventralibus 2.8-3.3 X 0.1-0.15 mm. Stamina minora: antherarum thecae 1.3-1.5 mm longae, connectivo sub loculis 0.1 mm prolongato appendice ventrali vix (0.1-0.2 mm) bilobato. Stylus 3.5-4.5 X 0.7-0.4 mm; stigma vix expansum 0.7 mm latum; ovarium apice in collum 0.5-0.6 mm altum circum stylum protractum; fructus triqueter; semina 0.4 X 0.3 mm minute tuberculata.

Type Collection: J. J. Wurdack 2276 (holotype US 2404447; isotype USM; 7 additional isotypes to be distributed), collected in rainforest on lower northwest slopes of Cerros Campanquiz, Río Marañón just above Pongo de Manseriche, Prov. Alto Amazonas, Depto. Loreto, Peru, elev. 250-350 m, 17 Oct. 1962. "Locally frequent. Petals white".

Paratypes (all at US): Colombia, Putumayo, Río San Miguel near mouth of Río Conejo, Cuatrecasas 10888. Ecuador, Napo-Pastaza: Zatzayacu, Mexia 7076; 8 km southeast of Tena, Grubb, Lloyd, Pennington, & Whitmore 1575.

Both suggested relatives have obviously strigulose hypanthia and less striking leaf dimorphism (the pairs having length ratios mostly 1:2-1:4 rather than ca. 1:6). D. amazonica also has external calyx teeth (including seta) projecting about 1 mm;

D. boliviensis has sparsely fine-strigose (hairs about 2 mm long) upper leaf surfaces, as well as striking plinervation. Along with Pilger, Standley, and Williams, I feel that Diolena and Triolena, as far as the species now known to me are concerned, should be united; however, I have seen neither Cogniaux-cited material nor recent collections of the two generotypes and also would prefer to consider the generic validity of at least Diplarpea and Monolena before disputing the opinions of 19th century monographers.

DIOLENA ALLARDII Wurdack, sp. nov.

D. amazonicae Pilger affinis sed staminum minorum appendicibus bene evolutis.

Humilis ca. 20 cm alta, habitu pubescentiaque ut in D. amazonica. Folia disparilia elliptica supra glabra subtus in venis venulisque modice laxeque strigulosa. Folia maiora: petioli 0.5-1 cm; lamina 8-11 X 3.5-4.5 cm apice per 0.5-1 cm acuminata basi asymmetrice cordata (ad 4 mm) 5-nervata vel vix (ad 5 mm) 5-plinervata margine ciliato-serrulata dentibus 0.5-1 mm altis et 2-4 mm inter se distantibus. Folia minora: petioli 1-2 mm longi; lamina 2.5-4.5 X 1.2-1.8 cm apice acuta basi asymmetrice cordulata inconspicue ciliolato-serrulata. Inflorescentia ut in D. amazonica, ad 7 cm longa; flores 5-meri, pedicellis 1 mm longis. Hypanthium (ad torum) 1.9 X 2 mm modice strigulosum pilis appressis glanduliferis sparse intermixtis; calycis tubus 0.6 mm altus, lobis interioribus 0.6-0.7 mm longis triangularibus, dentibus exterioribus 0.6-0.7 mm eminentibus et seta terminali 0.5-0.7 mm longa armatis. Petala 5 X 2.5 mm elliptica apice hebeti-acuta. Stamina dimorphica; filamenta 2.5 vel 2.3 mm. Stamina maiora: antherarum thecae 0.9 mm longae, connectivo sub loculis 0.1 mm prolongato cornu dorsali imperspicue evoluto, appendicibus duabus ventralibus 1.7-1.8 X 0.1-0.15 mm. Stamina minora: antherarum thecae 0.8 mm longae, connectivo sub loculis 0.1 mm prolongato cornu dorsali 0.1 mm alto appendicibus duabus ventralibus 0.7 X 0.1 mm. Stylus 4.8 X 0.25-0.3 mm basi in ovarii collo 0.4 mm alto immersus; fructus triquetrum, seminibus 0.4-0.45 X 0.3 mm minutissime tuberculatis.

Type Collection: H. A. Allard 20510 (holotype US 1999760), collected "on side of deep ravine at Las Cueras de los pavos on road to Lima," Tingo María, Depto. San Martín, Peru, elev. 625-1100 m, 30 Oct. 1949-19 Feb. 1950. "Flowers white".

Apart from the striking connective difference (the small stamen bilobed appendage being 0.1 mm long), D. amazonica also shows both members of each leaf pair with noticeable petioles (on the smaller leaf when mature at least 5 mm long). None of the other Diolena species whose stamens I have been able to examine (D. calciphila Standl. & Steyerm., D. stenophylla Standl. & Steyerm., D. amazonica Pilger, D. pluvialis Wurdack, D. spicata Triana, D. pileoides Triana) have other than rudiments (up to 0.4 mm long in D. calciphila) of ventral appendages on the small stamens. However, Dr. Gleason's notes indicate that D. purpurea Gleason has appendages similar to those

of D. allardii; vegetatively the Chocó congener is quite different, with reverse-setose stems and appressed-setose upper leaf surfaces.

SALPINGA MARANONENSIS Wurdack, sp. nov.

Ex descriptione et photicone S. ciliatae Pilg. affinis sed foliis margine undulato-denticulatis fructibus maioribus.

Perennis humilis 18-45 cm alta basi lignosa foliis exceptis glabra. Folia in dimensionibus vix anisomorphica (1:1.5) in forma isomorphica; petioli (1.5-) 3-5 cm glabri; lamina 6-15 X 3-7 cm anguste ovata apice sensim (per ca. 1-2 cm) hebeti-acuminata basi late acuta vel anguste obtusa i. s. tenuissima 5-nervata, supra sparse strigosa pilis gracilibus 1.5-2.5 mm longis laxis ca. 1/mm.^{2}, subtus glabra, margine serrulata dentibus 0.2-0.3 mm altis apice rotundatis et uniciliatis ciliis 0.5-0.7 mm longis. Inflorescentia ut in S. ciliata, pedunculo 2-3 cm longo axe florifero 1-3 cm longo (demum ad 4 cm); flores 5-meri; pedicelli 2.5 mm longi. Hypanthium (ad torum) 9 mm longum 10-costatum; calycis tubus 1 mm altus, lobis 3.4-3.8 X 2.7-3 mm ovatis apice vix acuminatis et mucronulatis basi expansis et contiguis. Petala 16-19 X 9-10 mm asymmetrice obovata apice rotundata glabra. Stamina dimorphica. Stamina maiora: filamenta 3.5-3.7 mm; antherarum thecae 6.1-6.4 mm subulatae, connectivo (ad filamenti insertionem) 0.8-0.9 mm prolongato, appendice dorsali cum parte adscendente 2.5-2.7 X 0.6 mm apice rotundata et parte descendente 0.4 mm infra filamenti insertionem. Stamina minora: filamenta 5.5-5.8 mm vix descendentia; antherarum thecae 2.7-2.9 mm, appendice dorsali 4.1-4.6 X 1.1-0.5 mm apice hebete. Stylus 11 X 1-0.5 mm; fructus trilocularis pedicello 3 mm longo corpore 17-20 mm longo; semina 0.6-0.7 X 0.4 mm nigra minute asperula.

Type Collection: J. J. Wurdack 1917 (holotype US 2404357; isotype USM; 5 additional isotypes to be distributed), collected in rainforest on ridge crest of Quebrada Chuivi (above Km 278 of Marañón road), valley of Río Marañón near Cascadas de Mayasi, Prov. Bagua, Depto. Amazonas, Peru, elev. 500-550 m, 10 Sep. 1962. "Locally frequent. Petals pink; anthers yellow with white appendage".

Paratype: Lopez, Sagástegui, & Collantes 4233 (TRP, US), from Campamento Lumba (Montenegro-Nazaret), Río Marañón, Prov. Bagua, Depto. Amazonas, Peru, elev. 450 m, 26 May 1963.

S. ciliata, still known only from Ule's original collection from Cerro de Cumbasso in Loreto, has ovate to rotund-ovate leaf blades with fimbriate-ciliate margins, as well as fruit only 2/3 as large as in S. maranonensis. Both southeast Brazilian species, S. longifolia (Cham.) Tr. and S. margaritacea (Naud.) Tr., with long calyx lobes have much smaller flowers and strongly triquetrous fruiting hypanthia. In general habit, S. maranonensis is like a somewhat depauperate S. secunda DC., differing in greater development of leaf pubescence and the well developed calyx lobes. Generally, material of S. secunda shows calyx lobes 0.5 mm or less high; however, material from the uppermost Amazon

basin (Colombia, Schultes 3887; Brazil, Krukoff 7285; Peru, Loreto, Asplund 14255, Klug 517, Killip & Smith 27148 and 29921) has calyx lobes 0.8-1 mm long. This material is perhaps subspecifically separable from typical S. secunda, but has the extremely sparse foliar pubescence of the typical form, the calyx lobes much wider than long, white small petals, and fruit (including pedicel) only 15-16 mm long.

SALPINGA DIMORPHA (Gleason) Wurdack, comb. nov.

Saccolena dimorpha Gleason, Bull. Torrey Club 52: 373. 1925.

As is evident from the discussion under the preceding species, as well as from Gleason's emendation (Phytologia 1: 37. 1933) of his original description, the genus Saccolena is conformable with Salpinga, at least as to the generotypes. Other transfers to Salpinga, especially from Macrocentrum, to accommodate species with dimorphic stamens and blunt erect dorsal appendages (M. glandulosum Gleason, M. pusillum Gleason) are required; such transfers are deferred until the evaluation of the two groups of Salpinga species (with elongate striate-terete fruit and short triquetrous fruit).

MICONIA PUJANA Mgf.

While the first Peruvian record for this species (Wurdack 1918, from rainforest on ridge crest of Quebrada Chuivi, Marañón valley near Cascadas de Mayasi, Prov. Bagua, Depto. Amazonas) varies slightly from the original description and the only Ecuadorian specimen available (Sydow 882, US), I do not feel inclined toward any subspecific recognition until more Ecuadorian collections are made. The Peruvian population shows leaf blades with cordulate bases and longer more persistent upper leaf surface hairs than the Puyo collection. While Markgraf placed M. pujana in Sect. Amblyarrhena, its closest relatives known to me are M. wagneri Macbr. and M. rupticalyx Wurdack in Sect. Laceraria; all three species have 4-merous flowers with an apiculate hyaline irregularly dehiscing calyx cone.

MICONIA LAMPROPHYLLA Triana

Previously known only from Colombia, the species has now been collected along the Río Marañón 2-10 km above the mouth of the Río Santiago, Prov. Bagua, Dept. Amazonas, (Wurdack 2261). The Peruvian material varies in no way from the more northern specimens.

MICONIA STELLIGERA Cogn.

M. clavistyla Gleason, Bull. Torrey Club 58: 229. 1931.

Williams 373 (NY) shows no specific differences from the many other collections of M. stelligera from Amazonian Peru, the leaf blades being only slightly firmer and basally broader than the species median and the pubescence slightly more compact and more persistent (on the lower leaf surfaces); however, these individual features are found in other collections of M.

stelligera. In pubescence compactness, the most distinct unit is the population around Pongo de Manseriche (Mexia 6240, Wurdack 2161); perhaps subspecific recognition will be needed when other collections from the Marañón below the pongo zone or from Amazonian Ecuador are available.

MICONIA UVIDA Wurdack, sp. nov.

Sect. Miconia. A speciebus 174-179 Monographiae Cogniauxii differt petalis extus stellulato-puberulis.

Frutex 1-2.5 m; ramuli teretes primum sicut petioli foliorum subtus venae primariae secundariaeque inflorescentia dense stellulato-furfuracei, ramis foliorum venis demum glabratis. Petioli 1-2.5 cm; lamina 8-18 X 2-4 cm lanceolata apice longe graditer angusteque acuta basi acuta chartacea, trinervata (jugo inframarginali debili neglecto) nervis primariis supra ut videtur 2-3 mm plinervatis sed subtus cum costa parallele adnatis nervis secundariis 2-5 mm inter se distantibus supra impressis subtus creberrime elevatis tertiariis supra invisis subtus vix elevatis et laxe reticulatis, supra glabra, subtus in superficie glabra in nervis tertiariis primum modice stellulato-furfuraceae demum glabrata, margine inconspicue undulato-serrulata non ciliata. Panicula 6-8 X 2.5-6 cm oblongo-ovata ramis primariis vix adscendentibus; flores 5-meri sessiles; bracteolae 0.9-1.3 X 0.6-0.8 mm triangulares acutae extus modice stellulato-puberulae persistentes. Hypanthium (ad torum) 2.5 X 1.5 mm sicut calycis lobi extus modice stellulato-puberulum; calycis tubus 0.5 mm altus, lobis interioribus 0.5 mm altis triangularibus acutis, dentibus exterioribus acutissimis lobos interiores aequantibus. Petala alba 2.8-3 X 1.4-1.5 mm asymmetrice obovato-oblonga apice vix emarginata extus dense granulosa et pilis stellulatis minutis appressis modice obsita intus glabra. Stamina in forma isomorphica; filamenta 2.8-3 vel 2.4-2.5 mm glabra; antherarum thecae 2.2-2.4 mm subulatae vix curvatae, connectivo ventraliter sub loculis 0.1-0.2 mm prolongato sed dorsaliter simpliciter cum filamentis articulato. Stylus 5.3-5.5 X 0.3 mm glaber; stigma non expansum; ovarium 3-loculare 1/2-inferum apice conicum truncatum 0.6 mm altum et in collum 0.2 mm altum circum stylum protractum sparse puberulum; fructus immaturus vix 10-costatus.

Type Collection: J. J. Wurdack 2153 (holotype US 2404416; isotype USM; 10 additional isotypes to be distrubuted), collected at edge of rainforest along Río Marañón just above Pongo de Manseriche, Prov. Alto Amazonas, Depto. Loreto, Peru, elev. 250-300 m, 4-7 Oct. 1962.

Paratype: Wurdack 2437, from the same locality, 26-28 Oct. 1962.

Among the satellites of M. prasina (Sw.) DC., all of which have either glabrous or granular-puberulous petals, M. lonchophylla Naud. and M. schlechtendalii Cogn. (especially the latter) are closest to M. uvida in leaf shape, but differ greatly in floral particulars. In minute pubescence and leaf venation features, especially in corolla indument, M. riparia Triana is a

closer relative than the species suggested by Cogniaux' keys. M. riparia has much narrower leaves (to about 1 cm wide), sparsely barbellate nodal hairs (to 0.7 mm long) intermixed with the shorter stellulate or densely barbellate ones, inflorescence either racemose or barely branched at the extreme base, and somewhat smaller flowers; in both species the connective bases are sporadically beset with a very few minute clavate glands. M. riparia is also common along the upper Marañón, growing among river edge rocks where it is frequently flooded during dry-season river rises; M. uvida occupies higher places on slopes which are either unflooded or rarely flooded even during the rainier months.

MICONIA PHLEBODES Wurdack, sp. nov.

Sect. Miconia. M. calvescenti DC. affinis sed foliorum venulis creberrime reticulatis.

Ramuli teretes (i. s. compressi) sicut petioli foliorum subtus venae primariae secundariaeque stellulato-puberuli. Petioli 2.5-5 cm; lamina 20-35 X 12-20 cm elliptica vel ovato-elliptica apice per 2-3 cm subabrupte angusteque acuminata basi late obtusa vel rotundato-truncata membranacea 5-nervata (jugo interiori ca. 3-5 mm supra basim inserto) nervis secundariis rectis supra impressis ca. 5-8 mm inter se distantibus tertiariis supra vix obscuris nervulis creberrime reticulatis areolis ca. 0.2-0.3 mm latis, supra et subtus in superficie glabra, margine integra. Panicula 12-25 X 10-20 cm ramis inferioribus rectis vel vix adscendentibus; flores 5-meri sessiles in ramulorum brevium extremitatibus plerumque pauciglomerati, bracteolis 0.5 mm longis deltoideis inconspicuis caducis. Hypanthium (ad torum) 2.1 mm longum; calycis tubus 0.4 mm altus, lobis interioribus 0.2 mm altis triangularibus basi remotis, dentibus exterioribus inconspicuis acutis non eminentibus. Petala 2 X 1.3 mm obovato-oblonga apice rotundata extus modice granulosa. Stamina vix dimorphica; filamenta 3.5 vel 2.5 mm; antherarum thecae 2.4-2.5 vel 2.3 mm anguste oblongae, connectivo basi per 0.2-0.3 mm subacute bilobato. Stylus 6 X 0.3 mm; stigma expansum 0.7 mm diam.; ovarium 3-loculare 3/5-inferum apice densiuscule furfuraceo-puberulum et in collum 0.1 mm altum circum stylum protractum.

Type Collection: J. J. Wurdack 1965 (holotype US 2404374; isotype USM; 5 additional isotypes to be distributed), collected on left bank of Río Marañón above Cascadas de Mayasi (opposite Km 278 of Marañón road), Prov. Bagua, Depto. Amazonas, Peru, elev. 425-500 m, 12 Sep. 1962. "Shrub 2-3 m, occasional. Petals white.

M. calvescens has somewhat firmer leaves with lax irregular veinlet areoles 0.5-1 mm wide, more definite calyx lobes 0.5 mm high, and cordiform sporadically glandular stamen connective appendages. (Incidentally I cannot see how M. zubenetana Macbr., at least as far as the US isotype is concerned, differs from M. calvescens, other than in a slightly different connective appendage). M. urbaniana Cogn. differs (ex descr.) from M. phlebodes at least in the cordulate leaf bases, large floral

bracteoles, and glandular stamen connectives. Other large-leaved species with essentially basally nerved leaves (M. panicularis Gleason, M. affinis DC., M. planinervia Naud.) all show lax leaf veinlet reticules and well developed calyx lobes. The dense veinlet reticulation is approximated in M. splendens (Sw.) Griseb.; that wide-spread species, however, has firmer definitely plinerved basally attenuate leaf blades and larger flowers.

MICONIA VENULOSA Wurdack, sp. nov.

Sect. Miconia. M. spennerostachyae Naud. affinis, sed petiolis non nectariferis, ramulis foliorum venis primariis subtus hypanthiisque densiuscule stellulato-furfuraceis.

Ramuli primum vix compressi demum teretes. Petioli 1-5 cm; lamina (10-) 15-26 X (5-) 7-16 cm elliptica apice per 1.5-3 cm subabrupte vel graditer acuminata basi late acuta vel anguste obtusa membranacea integra, venatione ut in M. phlebodei. Panicula 8-17 X 3-5 cm; flores 5-meri sessiles in ramulis unilateraliter dispositi, bracteolis 0.7 mm longis triangularibus valde caducis. Hypanthium (ad torum) 2.3 X 1.6 mm; calycis tubus 0.2 mm altus, lobis interioribus 0.15 mm altis vix acutis basi remotis, dentibus exterioribus 0.1 mm eminentibus tuberculiformibus. Petala 2.5 X 1 mm vix obovato-oblonga apice vix retusa extus modice granuloso-furfuracea. Stamina dimorphica glabra; filamenta 2.8 vel 2.1-2.2 mm. Stamina maiora: antherarum thecae 2.5 mm longae oblongo-subulatae curvatae, connectivo ad basim dorsaliter 0.15 mm elevato ventraliter sub thecis ca. 0.3 mm bilobato. Stamina minora: antherarum thecae 2 mm longae connectivo dorsaliter ca. 0.3 mm supra basim minute tuberculato ventraliter base ipse ca. 0.15 mm bilobato. Stylus 6.3 X 0.3 mm glaber; stigma non vel vix expansum 0.3-0.4 mm diam.; ovarium 3-loculare 0.4 inferum, apice libero 0.4 mm alto conico sparse furfuraceo.

Type Collection: J. J. Wurdack 2044 (holotype US 2404391; isotype USM; 6 additional isotypes to be distributed), collected in rainforest along Quebrada Tambillo (opposite Km 280-282 of Marañón road), valley of Río Marañón above Cascadas de Mayasi, Prov. Bagua, Depto. Amazonas, Peru, elev. 450 m, 18 Sep. 1962. "Shrub 4-6 m, occasional. Petals white."

Paratype: P. C. D. Cazalet & T. D. Pennington 5051 (US), from seasonal rainforest 20 km west of Santo Domingo de los Colorados, Prov. Pichincha, Ecuador, elev. 330 m, 17 Oct. 1961. "Undershrub to 15 ft. Fls white in bud, falling early."

M. spennerostachya differs at least in the petiolar (and sometimes laminar) nectaries and glabrous (or nearly so) leaves, inflorescences, and hypanthia (albeit sometimes with a formless appressed puberulence). M. pauciglandulosa Naud. (at least ex descr. and Macbride photo 36000) has obviously plinerved leaves, calyx lobes 0.7 mm high, and definitely glandular connectives. If the nectary character for M. spennerostachya is a constant for species identification, that species is quite variable in both leaf venation and connective gland development. The unilateral ("scorpioid") flower arrangement is more obvious at

anthesis in M. venulosa than in the suggested relatives. Vegetatively, M. venulosa matches closely M. phlebodes; however, the non-scorpioid inflorescence branches, rather acutely bilobed bases of the large stamen connectives, and expanded stigmas separate the latter. In both species, no sign of foliar nectary development was found in the various duplicate specimens.

MICONIA MEDIA (D. Don) Naud. subsp. BOREALIS Wurdack, subsp. nov.

Ramuli novelli sicut petioli non setosi.

Type Collection: J. J. Wurdack 1265 (holotype US 2404277; isotype USM; 6 additional isotypes to be distributed), collected on the middle eastern slopes of Serrania Calla-Calla near Km 416-419 of Leimebamba-Balsas road, Prov. Chachapoyas, Depto. Amazonas, Peru, elev. 2900-3100 m, 9 July 1962. "Shrub 2-4 m, occasional. Corolla white; anthers purple-pink."

Paratypes (all Prov. Chachapoyas, Depto. Amazonas): Wurdack 671, 683, & 790, from upper slopes and summit of Puma-urcu southeast of Chachapoyas, elev. 2700-3150 m, 1-7 Jun 1962; Wurdack 1438, from summit of Cerro Malcabal 3-6 km southeast of Molinopampa, elev. 2850-2900 m, 20 July 1962; "Chachapoyas", Mathews s. n. (NY).

The typical subspecies, known best from Huánuco, has young branchlets, nodes, and petioles sparsely to moderately setulose or short-setose. In both subspecies, the leaves are very obviously (typical) to very obscurely (Wurdack 790; Ruiz & Pavon Herb. Lambert 5087, US) serrulate. The Mathews collection, although unnumbered was annotated by Triana and is probably a duplicate of No. 1282 cited by him (but not by Cogniaux) for M. media. M. brevis Macbr., as noted in the Flora of Peru, is very closely related to M. media, but has flowers only 1/2 as large, as well as coarser leaf veinlet reticulation. The floral dimensions in M. brevis (isotype US) are actually smaller than those given by Macbride; also, Weberbauer 6334 does show tufts of simple hairs in the inner primary vein axils on the lower leaf surface, just as in M. media.

MICONIA MICROPETALA Cogn.

M. setinervia Cogn., Bot. Jahrb. 42: 143. 1908.

There are no differences between Ecuadorian and Peruvian collections, other than the slightly more persistent rufous tomentum and rather less persistent simple cauline hairs in the Loja material. Obviously Cogniaux did not see in M. micropetala mature flowers such as are on one of the Jameson collections (US 600787); his placement of M. setinervia in Sect. Cremanium is correct. The young cauline hairs are caducously gland-tipped, but the lower leaf surface hairs are eglandular. Apart from the Jameson series (US) and Weberbauer 1145, the other more recent collections include: Espinosa 1075 (NY) from Loja, Ecuador; Metcalf 30672 (US) from Puno, Peru; and Wurdack 1065 and 1440 from Amazonas, Peru. In Wurdack 1440, the lower leaf surface hairs are more caducous than usual. M. micropetala generally resembles M. caelata (Bonpl.) DC., which however lacks simple

foliar hairs.

TOCOCA MEXIAE Wurdack, sp. nov.

Sect. Hypophysca. T. spruceanae Cogn. affinis, sed foliis non plinervatis.

Ramuli primum quadrisulcati demum teretes sicut petioli formicariaque dense setosi pilis 3-4 mm longis setis glanduliferis brevioribus sparse intermixtis. Folia omnia vesiculifera; petioli liberi 1.5-2.5 cm; formicaria 1-2 cm longa urceolata in lamina plusminusve 1/2 insidentia; lamina 17-35 X 9-15 cm apice per 1.5-2.5 cm abrupte acuminata basi acuta i.s. tenuiter membranacea, 5-nervata nervis secundariis fere rectis vel vix adscendentibus, supra modice strigosa pilis gracilibus 1.5-2 mm longis et 1/1-1.5 mm^2, subtus in nervis primariis secundariisque modice setosa pilis 1-2 mm longis in nervis tertiariis superficieque sparse setulosa, margine undulato-serrulata et breviciliata dentibus 0.5-1 mm altis et 2-3 mm inter se distantibus. Panicula 12-15 cm longa oblonga densiuscule setosa pilis fere omnibus glanduliferis ca. 2 mm longis, axe centrali robusto i. s. complanato, ramis lateralibus subtus oppositis supra 4-verticillatis axe ca. 1 cm longo apice plerumque bifurcato ramulis plerumque bifloris. Flores 5-meri pedicellis ca. 5 mm longis. Hypanthium (ad torum) 5.8-6 X 3.8-4 mm campanulatum sicut calyx dense setosum pilis 1.5-2 mm longis plerumque glanduliferis; calycis tubus 0.9 mm altus non dilatatus, lobis interioribus vix evolutis 0.2 mm altis rotundatis dentibus exterioribus brevibus crassis setiferis non eminentibus. Petala 7-7.2 X 3.8 mm asymmetrice obovata apice oblique truncata vel vix emarginata dense granuloso-pruinosa extus centraliter juxta costam setis 3-8 glanduliferis 0.6-1.2 mm longis ornata. Stamina isomorphica glabra; filamenta 5.5 mm longa; antherarum thecae 5.5 mm longae oblongae apice ventraliter uniporosae, connectivo dorsaliter basi 0.4 mm elevato. Stylus 11 X 0.8-2.2 mm in basi extrema sparse setosus pilis eglandulosis 1.5 mm longis; stigma expansum 2.7 mm diam.; ovarium 3-loculare 1/2 inferum apice conico 1.5 mm alto setis eglandulosis 1.5-2 mm longis armato.

Type Collection: J. J. Wurdack 2406 (holotype US 2404476; isotype USM; 6 additional isotypes to be distributed), collected on a forested ridge on right bank of Rio Santiago 2-3 km above mouth, Prov. Bagua, Depto. Amazonas, Peru, elev. 300-350 m, 25 Oct. 1962. "Shrub 1.5-2 m, occasional. Petals pink."

Paratype: Ynes Mexia 6363 (US), fruiting, from heights to right of Río Santiago above Pongo de Manseriche, Depto. Loreto, Peru.

T. spruceana has shortly plinerved leaves, larger (2.5-3 cm long) less densely setose formicaria with a more pronounced constriction at the blade base, and mostly eglandular inflorescence hairs (although the Kew specimen, examined by me several years ago, does show a very few glandular hypanthial and calyx hairs). The robust more pubescent forms of T. acuminata Benth. with slightly flaring lobulate calyx limb somewhat resemble T. mexiae in general aspect, but differ in the smaller hypanthia,

externally non-setose petals, and obscurely puberulent (with very minute glandular hairs) ovary apex. The epithet commemorates the best field woman of the neotropics, whose understory collections made at Pongo de Manseriche over thirty years ago have elucidated, along with Tessmann's upper forest canopy sampling, the current material; the paratype was distributed as *T. micrantha* Ule. Incidentally, the political geography of the Pongo de Manseriche region has placed the lower two kilometers of the Río Santiago in Depto. Loreto and the region further upstream in Amazonas; for the Peruvian Army command administration from Iquitos, the departmental boundary along the crest of the Cerros Campanquiz deviates at Pongo de Manseriche.

TOCOCA CHUIVENSIS Wurdack, sp. nov.

Sect. *Hypophysca*. Inter sectionis congeneros differt ovario ominino infero.

Ramuli primum compressi demum teretes sicut petioli inflorescentiaque modice vel vix dense setosi pilis plerumque glanduliferis 2-3 mm longis. Folia in quoque jugo vix dimorphica omnia vesiculifera; petioli liberi 0.6-2.5 cm; vesica libera 1-2.2 cm longa vix scrotiformis vel oblonga modice setosa pilis 2-3 mm longis plerumque non glanduliferis; lamina 7-24 X 6-16 cm ovato-elliptica apice per 0.5-1.5 cm abrupte acuminata basi late obtusa vel truncata i.s. membranacea, 5-nervata nervis secundariis fere rectis vel vix adscendentibus, supra vix sparse strigosa pilis 1-2 mm longis plerumque non glanduliferis ca. 1/2 mm^2, subtus in nervis primariis secundariisque modice vel sparse setosa pilis non glanduliferis 2.5-3.5 mm longis in nervis tertiariis sparsissime setosa in superficie glabra, margine integra et densiuscule ciliata setis 1-1.5 mm longis. Panicula 8-15 cm longa ramis oppositis; flores 5-meri (rarissime 6-meri) plerumque pedicellati pedicellis 4-6 mm longis. Hypanthium (ad torum) 5.5 mm longum sicut calycis tubus sparsiuscule setosum pilis 2-3 mm longis plerumque glanduliferis; calycis tubus 1 mm altus limbo vix expanso, lobis interioribus 0.3 mm altis late rotundatis margine minutissime glanduloso-ciliatis, dentibus exterioribus setiferis rotundatis non eminentibus. Petala 8.5 X 7 mm obovato-oblonga apice vix emarginata densiuscule granuloso-pruinosa extus rarissime seta unica armata. Stamina isomorphica glabra; filamenta 5-5.2 mm; antherarum thecae 5.2 mm longae oblongae apice ventraliter uniporosae connectivo dorsaliter juxta basim vix (0.4 mm) elevato. Stylus 11 X 0.7-1 mm glaber; stigma expansum 1.5 mm diam.; ovarium 3-loculare omnino inferum apice ut videtur glabrum sed sparsissime cum glandulis minutissimis clavatis obsitum.

Type Collection: *J. J. Wurdack 1920* (holotype US 2404360; isotype USM; 5 additional isotypes to be distributed), collected in rainforest on ridge crest of Quebrada Chuivi (above Km 278 of Marañón road), valley of Río Marañón near Cascadas de Mayasi, Prov. Bagua, Depto. Amazonas, Peru, elev. 500-550 m, 10 Sep. 1962. "Shrub 1-1.5 m, occasional in forest clearings. Corolla pink."

From dissections and Cogniaux' Flora Brasiliensis descriptions, all other sectional congeners have a conical ovary apex; no collection of T. platyphysca Cogn., known only from bud material, has been seen, but at least vegetative features differentiate this species. T. occidentalis Naud. is perhaps the closest relative, but differs in the sparser pubescence and definitely lobed calyx. The general aspect of T. chuivensis is also like a pubescent form of T. guyanensis Aubl. (but with depauperate formicaria), which (despite the ovary apex variability discussed by Gleason) always has the ovary at least partially free.

TOCOCA CAROLENSIS Gleason

Wurdack 1995, from the upper Marañón lowland rainforest, shows beaked calyptrate calyces (on buds) which dehisce above the torus; the calyptra is 5 mm high, with an additional 3 mm beak. On each of 3 flowers examined from the Peruvian material and one flower from the Bolivian isotype (US), there were 6 petals and 12 stamens, with a basally sparsely glandular-puberulous style and 6-celled ovary. A similar beaked rather irregularly and tardily dehiscing calyx is found in T. parviflora Spr. ex Benth. (vide infra) and in minute-flowered species of Miconia Sect. Laceraria. While the calyptrate calyx would suggest Conostegia, the pubescence (especially the glandular hairs) is distinctly tococoid and rather different from the setose species of Conostegia.

TOCOCA FILIFORMIS (Gleason) Wurdack, comb. nov.

Myrmidone filiformis Gleason, Bull. Torrey Club 57: 74. 1930.

All features of the Caqueta species except the minor one of flower-mery impel placement in Tococa. T. filiformis lacks the hypanthial flange (union of external calyx teeth bases) seen in both Myrmidone macrosperma Mart. and M. lanceolata Cogn.; this feature led to Gleason's description of the genus Hormocalyx and his later retraction (and correctly, since the Krukoff type collection shows predominantly 6-merous flowers and also otherwise compatibility with M. macrosperma). Judging from Mexia 6412 and 6428 (distributed originally as T. egensis Naud. and T. longisepala Cogn.), from Rancho Indiana, Iquitos, Peru, there seems no disputing the generic placement of the predominantly 4-merous T. caudata Mgf., and 6-mery does not seem a more important generic criterion. A recent collection of T. filiformis is Cuatrecasas 8802 (US) from Florencia, Caquetá, Colombia; the inflorescences are both lateral and terminal in the Florencia material, with floral dimensions slightly larger than in Gleason's original description. Incidentally, the New York photo of the Woronow & Juzepczuk type shows sparsely setose formicaria and lower leaf surface primary veins sparsely setose just above the formicarium.

TOCOCA PARVIFLORA Spruce ex Triana subsp. MANSERICHENSIS Wurdack,

subsp. nov.

A subsp. parviflora differt calycis dentibus exterioribus nullis.

Type Collection: J. J. Wurdack 2092 (holotype US 2404402; isotype USM; 5 additional isotypes to be distributed), collected in high rainforest along Rio Marañón near Teniente Pinglo, just above Pongo de Manseriche, Prov. Alto Amazonas, Depto. Loreto, Peru, elev. 250-300 m, 4-7 Oct. 1962. "Shrub 1-2 m, occasional. Flowers pale pink."

In the typical subspecies, the external calyx teeth are obvious, surrounding the calyptra beak in buds and persisting at anthesis; excellent flowering material of subsp. parviflora in various developmental stages has been collected in Ecuador (Fuller 128, NY). In the closely related T. micrantha Ule (also found in the Marañón rainforest, Wurdack 1891), the calyptra is much flattened and very obscure with no apparent beak; judging from the original description and numerous recent Caquetá collections, T. caquetana Sprague is almost surely a synonym of T. micrantha. The other species in this group, T. variegata Mgf, known to me only from the original description, is evidently distinct from either T. parviflora or T. micrantha.

CLIDEMIA ALLARDII Wurdack subsp. MARANONENSIS Wurdack, subsp. nov.

Inflorescentia compacta pluriflora ramis non evolutis.

Type Collection: J. J. Wurdack 1993 (holotype US 2404380; isotype USM; 4 additional isotypes to be distributed), collected in rainforest along Quebrada Tambillo (below Km 280 of Marañón road), valley of Río Marañón above Cascadas de Mayasi, Prov. Bagua, Depto. Amazonas, Peru, elev. 425-525 m, 14 Sep. 1962. "Shrub 1-2 m, occasional. Young leaves and cauline hairs red-tinged. Corolla white."

Paratype: Wurdack 1994, from the same locality.

While the compact inflorescences (with branches less than 5 mm long) of the Marañón population negate the convenient inflorescence size criterion used for the separation of C. allardii from its near-relatives (Phytologia 7: 241. 1960), the other vegetative features, especially the presence of plumulose hairs, still serve as separating characters. Additionally, C. allardii has leaf bases quite cordate, in contrast to the rounded to insignificantly emarginate bases of C. crenulata Gleason. There are no obvious floral differences between the two subspecies of C. allardii. The Marañón rainforest population has two elements, the paratype having the hairs straw-colored rather than red-tinged. No patent ecologic factor for this color difference could be seen in the field. Judging from herbarium material, these two color forms also exist in the typical subspecies, Cuatrecasas 10569 and 11317 having red-tinged foliage and the other collections cited in the original description pale hairs.

BLAKEA PORTENTOSA Wurdack, sp. nov.

B. pyxidanthus Tr. affinis sed foliis et floribus maioribus calyce distincte lobato.

Rami primum indistincte compresso-quadrangulati demum teretes appresso-furfuracei (indumento indiscreto) et in nodis inconspicue setulosi mox glabrati. Petioli 3-5 cm longi apice supra primum setulosi demum glabrati; lamina 10-20 X 6.5-15 cm late elliptica apice abrupte per 0.5-1 cm hebeti-acuminata basi anguste obtusa vel late acuta coriacea integra, brevissime 5-plinervata jugo interiori 0.3-0.5 cm supra basim inserto jugo exteriori debili ca. 1 mm inframarginali nervis secundariis vix adscendentibus 4-7 mm inter se distantibus nervis tertiariis non evolutis, supra glabra, subtus in nervis secundariis superficieque primum amorpho-squamata mox glabrata in nervis primariis primum sparse longo-setulosa demum glabrata superficie i. s. pallida. Flores in foliorum superiorum axillis (1-) 2-4-aggregati 6-meri glabrati, bracteis omnibus hypanthio brevioribus; pedicelli 1.5-2.5 cm longi robusti; bracteae exteriores 8-10 X 11-13 mm basi 2-3 mm coalitae suborbiculares apice rotundatae extus vix costatae nervis lateralibus invisis; bracteae interiores 12 X 24-26 mm oblatae apice rotundato-truncatae usque ad basim liberae lateraliter ca. 4-5 mm imbricatae margine vix pellucidae. Hypanthium (ad torum) 6.5-7 X 9.5 mm glabrum; calycis tubus 6-6.5 X 20 mm, lobis 2-2.5 X 9 mm apice rotundatis. Petala 27-30 X 17-19 mm oblongo-obovata apice rotundata extus i. s. minute muriculata. Filamenta 13-15 X 3.5 mm; antherarum thecae 8.5 X 3.5-4 X 2.5 mm late hemiellipticae ventraliter ca. 2.5 mm infra apicem minute (0.1-0.15 mm) biporosae connectivo dorsaliter basi 2.5-3 mm elevato acuto. Stylus 18-20 X 2 mm in ovarii cono 1 mm alto insertus; stigma truncatum; ovarium omnino inferum glabrum.

Type Collection: J. J. Wurdack 2380 (holotype US 2404470; isotype USM; 7 additional isotypes to be distributed), collected in rainforest on middle north slopes of Cerros Campanquiz at Pongo de Manseriche, right bank of Río Marañón, Prov. Alto Amazonas, Depto. Loreto, Peru, elev. 550-750 m, 22 Oct. 1962. "Woody vine climbing 8 m. Petals apically pink, basally white; anther thecae cream, the connective yellow."

B. pyxidanthus (at least as far as Uribe 1553, Lehmann 5551, Duque 1568a, and Dryander 2070 show) has leaves and flowers only half as large as B. portentosa, as well as a truncate or indistinctly undulate-margined calyx; however, the glaucescent-appearing lower leaf surfaces with caducously barbellate primary vein axils and distantly placed secondary veins are as in the Peruvian relative. More distant congeners, all with larger external bracts 15-25 mm long as well as individual specific differences, are B. orientalis Gleason and its 3 South American relatives (Bull. Torrey Club 72: 387. 1945).